

APPENDIX 5

BIOLOGICAL EVALUATION of the Proposed Baker Creek Projects

WILDLIFE RESOURCES

USDI – Bureau of Land Management, Salem District, Tillamook Resource Area

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The action alternative within the Baker Creek project proposal includes a combination of two types of projects - density management and wildlife habitat enhancement projects. For the purpose of this evaluation, unless otherwise noted, these proposed projects are being analyzed as two separate projects. All acreages are approximate.

The locations of the proposed Baker Creek density management and/or wildlife habitat enhancement treatment units are as follows:

- Township 3 South, Range 5 West, Sections 17, 19, 29, 31 and 33. W.M.
(Willamette Meridian).
- Township 3 South, Range 6 West, Sections 13, 23, 24, 25, 35 and 36. W.M.
- Township 4 South, Range 5 West, Section 7. W.M.
- Township 4 South, Range 6 West, Section 1. W.M.

Although the various legal locations identified above do not include the haul routes associated with the density management project, the impacts of the log haul have been analyzed and are included within the identified potential impacts resulting from the proposed density management project.

Alternative 1 - The Proposed Action contains two general types of projects

- 1.) Density management treatments within 11 treatment units totaling approximately 647 acres that would be accomplished with a combination of cable and ground based yarding systems. The project includes all proposed road and landing construction, reconstruction and decommissioning.
- 2.) Wildlife habitat enhancement on a total of approximately 298 acres accomplished with various treatments designed to promote the development of CWD (Coarse Woody Debris) and other late-seral-stage habitat features.

Alternative 2 - No Action

Units of Measure: The units of measure used for impact analysis relative to wildlife resources include the following:

Species listed under the ESA - A narrative discussion describing the expected impacts as it relates to the potential for disturbance; impacts to suitable habitat; and in the case of the spotted owl, impacts to dispersal habitat.

Survey and Manage mollusks - Maintenance and enhancement of the species at the site.

Survey and Manage red tree voles - Protection of the physical integrity of the nest site to maintain its population and provide for expansion of the number of active nests at the site.

Bureau 6840 Special Status Species Policy Species - Elevation of their status to any higher level of concern including the need to list under the ESA.

Northwest Forest Plan Bats - A narrative discussion describing the expected impacts.

Other Species of Concern - Roosevelt elk and black-tailed deer - A narrative discussion describing the expected impacts of the proposed action as it relates to the potential for disturbance and impacts to elements of their habitat.

AFFECTED ENVIRONMENT relative to wildlife and wildlife habitat

Landscape or Watershed Scale: The following landscape or watershed scale discussions apply to all of the projects contained within this Biological Evaluation.

The federal lands that include the proposed Baker Creek project areas generally extend from the coast range summit at an elevation of about 2400 feet, down the eastern slopes to about 900 feet in elevation. The proposed density management and/or wildlife habitat enhancement treatment units are located within three different 5th field watersheds including the North Yamhill River and Lower South Yamhill River watersheds, as well as a minor amount of acreage within the Nestucca River watershed. Within these 5th field watersheds, projects are proposed within five different 6th field watersheds; these include the Haskins Creek, Panther Creek and Baker Creek 6th field watersheds (within the North Yamhill 5th field watershed); the Upper Deer Creek 6th field watershed (located within the Lower South Yamhill River 5th field watershed); and the Upper Nestucca River 6th field watershed (within Nestucca River 5th field watershed). For additional information on the wildlife and wildlife habitat within these watersheds, see the *North Yamhill Watershed Analysis* (USDI, January 1997), *Deer Creek, Panther Creek, Willamina Creek and South Yamhill Watershed Analysis* (USDI, May 1998), *Nestucca Watershed Analysis* (USDA and USDI, October 1994), as well as the *North Coast LSRA (Late-Successional Reserve Assessment for Oregon's Northern Coast Range Adaptive Management Area* - USDA and USDI, January 1998).

The LSRA identifies the federal lands within the general project area, including the stands

proposed for treatment, as being Early-Seral Landscape Cells located primarily within the Corridor Landscape Zone; a small portion of the area is located within the Buffer landscape Zone. Based largely upon fire history, past management and ownership patterns, these areas currently have very little late-seral-stage forest but are critical to the development of a fully functioning network of LSRs. The areas are considered a high priority for restoration treatment with emphasis placed upon creating late-successional habitat and providing connectivity across the landscape. Specific management goals (as per the LSRA) within these areas include but are not limited to the application of silvicultural treatments which have a high degree of certainty of being successful and will accelerate the development of late-successional forest habitat; maintaining and enhancing dispersal habitat for late-seral species; protecting and buffering existing small patches of late-successional habitat; and reducing or eradicating exotic species.

For the purposes of this discussion, the “Analysis Area” is defined as the aggregated area of land, equal in size and shape to one township, but comprised of lands in four adjacent townships (T3S., R6W.; T4S., R6W.; T4S., R5W.; and T3S., R5W. W.M.). See Figure 1. Approximately 28% of the land within the Analysis Area is managed by the BLM, while 72% is non-federal land that is either owned by private industrial timber companies, other companies, private individuals or municipalities. The BLM lands (6,403 acres) are contained within the North Coast Adaptive Management Area as defined within the Salem District RMP (*Salem District Record of Decision and Resource Management Plan* - May 1995).

Figure 1. The area used as the “Analysis Area” for impact analysis of the Baker Creek Project upon wildlife resources includes a total of 36 sections of land located in four adjacent townships.

	T3S.,R6W			T3S.,R5W			
	15	14	13	18	17	16	
	22	23	24	19	20	21	
	27	26	25	30	29	28	
	34	35	36	31	32	33	
	3	2	1	6	5	4	
	10	11	12	7	8	9	
	T4S.,R6W			T4S.,R5W			

The federal lands within Analysis Area are distributed in a scattered, non-contiguous fashion and generally do not lend themselves to the management of larger blocks of late-seral habitat. Based upon this ownership pattern, many late-seral stands within the landscape are expected to function more as important elements of general connectivity, dispersal, and refugia for late-successional associated species with smaller home ranges, or for those species such as bats or pileated woodpeckers which may utilize other habitat types but are dependent upon some specific late-successional habitat features.

In general, in addition to the ownership pattern, past and present actions have resulted in relatively little habitat within or near the Analysis Area for those species dependent upon later-seral stage habitat including snags and other coarse woody debris; large blocks of interior forested habitat; or cool, shaded, riparian habitats. Existing late-seral habitat within the Analysis Area is present almost exclusively on BLM land; approximately 23% of the BLM land, or roughly 6% of all ownerships is considered to be late-seral habitat. It is located in scattered small patches, which are generally less than about 30 or 40 acres in size; some of these late-seral patches contain large remnant old-growth trees. Conversely, there is a great deal of habitat within the Analysis Area for those species which depend upon or utilize earlier-seral stage habitats; smaller forested patches; and/or the high contrast edges resulting from the juxtaposition of differing habitat types. While many forested riparian corridors have been completely harvested or reduced to thin strips of red alder, the in-stream habitat conditions for aquatic species within the area are generally quite variable.

Past and present actions within or near the Analysis Area have resulted in some portions of the area being highly disturbed by human activity. These actions include forest management activities largely occurring on private industrial lands (primarily clearcut harvesting), activities associated with road maintenance and the raising of McGuire Reservoir, as well as the public's recreational activities such as 4x4 and OHV usage, target shooting and hunting. The potential for and amount of disturbance within an area is often correlated to roads. Although portions of the forested lands within and adjacent to the Analysis Area are behind private gates which are often locked and therefore less accessible to the public, other portions are relatively highly disturbed by human-caused noise and activity. Current road densities vary by subwatershed; within the Baker Creek, Panther Creek, Upper Deer Creek and Upper Nestucca River 6th field watersheds, road densities are approximately 5.4, 6.2, 4.3 and 5.5 miles/mi², respectively.

Project Area Scale for the Proposed Density Management Treatment Units: The proposed density management treatment units are generally located to the south of the proposed wildlife habitat enhancement units. The density management units are located at Township 3 South, Range 5 West, Sections 29, 31 and 33; Township 3 South, Range 6 West, Sections 25, 35 and 36; Township 4 South, Range 5 West, Section 7; Township 4 South, Range 6 West, Section 1. W.M..

The proposed density management project would treat approximately 431 acres within the AMA (Adaptive Management Area) land allocation and 216 acres of Riparian Reserve as identified in the NWFP (Northwest Forest Plan or *Record of Decision for Amendments to Forest Service and Bureau of Land Management Planning Documents Within the Range of the Northern Spotted Owl, and Standard and Guidelines for Management of Habitat for Late-successional and Old-growth Forest Related Species Within the Range of the Northern Spotted Owl* - April 1994) and Salem District RMP. There are no unmapped LSRs within the vicinity of the proposed action. The areas proposed for density management are not located within designated spotted owl or marbled murrelet critical habitat. One of the proposed density management treatment units (25-1), totaling approximately 167 acres, as well as an existing road to be decommissioned, is located within a spotted owl RPA as delineated within the document entitled *Delineation and Management of Reserve Pair Areas within Oregon's Northern Coast Range Adaptive*

Management Area, dated June 1, 2000. None of the areas proposed for density management are located within areas identified within the 15% Analysis Documentation (as updated 11/15/99) that was completed to assure conformance with the 15 percent Retention Standard and Guideline (Salem District RMP - pg. 48).

The proposed Baker Creek density management treatment units are forested with trees which primarily range in ages from approximately 35- to 65-years-old. In general, the stands are strongly dominated by densely stocked Douglas-fir and are fairly homogenous in tree sizes and stand structure. Although fir dominates most of the stands proposed for treatment, some stands contain various levels of hardwoods, primarily big-leaf maple and red alder, that are present in variously sized patches and as single scattered trees. In addition, limited amounts of western redcedar, cherry, grand fir and western hemlock are also present in some units. A few of the stands contain or are in the vicinity of scattered individual or small clumps of larger trees; some of these trees are old-growth remnants while others are larger second growth. Some stands contain an appreciable level of *Phellinus weirrii*, a laminated root disease, and as a result have greatly reduced stocking levels and resultant canopy closure; this is most notable in five units (25-1, 1-1, 7-1, 35-1 and 35-2).

There are no known special habitats (e.g., talus slopes, cliffs, caves, or mines or abandoned wooden bridges) within the vicinity of the proposed projects.

There is considerable variation in the amount and condition of down wood, snags, and total CWD (Course Woody Debris) volume among the proposed units. With an average of 2,348 cubic feet of CWD per acre in the stands included in the density management treatment areas and in some of the surrounding stands, levels of CWD, including both snags and downed logs, are currently near the lower end of the high range (1,980 to 4,840 cubic feet per acre) for Oregon Coast Range stands 25 to 79 years old as identified in the LSRA. According to the forest survey data averaged across all units, approximately 92% of the CWD volume is contained within down logs and 8% is in the form of snags. It varies by unit, but averaging data from all units approximately 75% of the down wood is in the later decay classes. Hard snags are generally small suppression related mortality or associated with root rot pockets; these snags are not expected to remain standing for a lengthy period of time. The *Silvicultural Prescription for the Baker Creek Density Management Project* (Appendix 2) contains a series of tables displaying detailed snag and down wood data for the individual units.

Table 1. lists those Bureau Special Status Species, S&M and federally listed wildlife species that are potentially located within and/or near the Baker Creek project areas.

Table 1.

Wildlife species of the Tillamook Resource Area
that have such status that their evaluation is warranted under NEPA

The Baker Creek Density Management and Wildlife Habitat Enhancement Projects				
Common Name	ESA	NWFP	BLM	Impact Synopsis
Mammals:				
Columbian White-tailed Deer	FE	-	FE	No – Not within expected range
Fisher	-	-	BS	No - Presence is very unlikely; negligible impact to habitat.
Fringed Myotis	-	ROD	BT	No - Negligible impact to habitat, see BE text
Long-eared Myotis	-	ROD	BT	No - Negligible impact to habitat, see BE text
Long-legged Myotis	-	ROD	BT	No - Negligible impact to habitat, see BE text
Red Tree Vole	-	S&M	-	Yes - Felling of Douglas-fir trees
Silver-haired Bat	-	ROD	BT	No - Negligible impact to habitat, see BE text
Townsend's Big-eared Bat	-	-	BS	No - Negligible impact to habitat, see BE text
Birds:				
Aleutian Canada Goose	FT	-	FT	No - No habitat
Bald Eagle	FT	-	FT	Yes – Potential habitat modification and disturbance
Brown Pelican	FE	-	FE	No - No habitat, not in range
Harlequin Duck	-	-	BA	No – Not within current range
Lewis' Woodpecker	-	-	BS	No – Not within current range
Marbled Murrelet	FT	-	FT	Yes – Potential for habitat modification and disturbance
Northern Spotted Owl	FT	-	FT	Yes – Potential for habitat modification and disturbance
Northern Goshawk	-	-	BS	No - Negligible impact to habitat, see BE text
Peregrine Falcon	-	-	BS	No - No impact to habitat, see BE text
Purple Martin	-	-	BS	No - Presence very unlikely
Yellow-breasted Chat (WV)	-	-	BS	No – Not in range
Amphibians and Reptiles:				
Columbia Torrent Salamander	-	-	BS	Yes – Within range, habitat is present.
Cope's Giant Salamander	-	-	BA	No – Not in range.
Oregon Spotted Frog	FC	-	FC	No – Not in current range
Painted Turtle	-	-	BS	No – Not in range
Western Pond Turtle	-	-	BS	No – Not in range

Table 1. (cont.)

Wildlife species of the Tillamook Resource Area
that have such status that their evaluation is warranted under NEPA.

Common Name	ESA	NWFP	BLM	Impact Synopsis
Invertebrates: (arthropods and worms)				
American Acetropis Grass Bug	-	-	BS	No - No habitat
Insular Blue Butterfly	-	-	BS	No - No habitat
Oregon Giant Earthworm	-	-	BS	No - Not in range
Oregon Silverspot Butterfly	FT	-	FT	No - No habitat
Valley Silverspot Butterfly	-	-	BA	No - No habitat
Willamette Callippe Fritillary Butterfly	-	-	BS	No - No habitat
Invertebrates: (mollusks)				
Blue-gray Tail-dropper	-	0	-	Yes - Potential habitat
Evening Fieldslug	-	S&M	BS	Yes - Potential habitat
Oregon Megomphix	-	S&M	BT	Yes - Potential habitat, species identified during surveys
Papillose Tail-dropper	-	0	-	Yes - Potential habitat, species identified during surveys
Puget Oregonian	-	S&M	BT	Yes - Potential habitat, species identified during surveys
Warty Jumping-slug	-	0	BT	Yes - Potential habitat, species identified during surveys

ESA - Endangered Species Act; **FE** - Federal Endangered; **FT** - Federal Threatened; **FC** - Federal Candidate

NWFP - Northwest Forest Plan; **S&M** - Survey and Manage; **ROD** - Bat species whose roost sites are protected in the ROD; **0** - Former Survey & Manage species which were included in the surveys but have since been removed from the S&M list.

BLM - BLM Manual 6840 Special Status Species Policy list; **BS** - Bureau Sensitive; **BA** - Bureau Assessment; **BT** - Bureau Tracking

Impact Synopsis: **NO** - No appreciable impacts to the species or its habitat. Unless otherwise noted, no further analysis will be conducted in the EA or BE (Biological Evaluation). **YES** - Impacts to a species and/or its habitat may occur and/or further analysis will be conducted in the BE.

Wildlife Species listed or proposed under the Endangered Species Act:

Based on the fact that no suitable habitat nor designated critical habitat for the Oregon silverspot butterfly, Fender's blue butterfly, western snowy plover, brown pelican or Columbia white-tailed deer is present within the project areas, and there are no expected impacts upon these species which are either proposed or listed under the Endangered Species Act; they will receive no further discussion or analysis.

Northern Spotted Owl - Federally Threatened (FT)

The proposed density management project would not occur within or near designated spotted owl critical habitat. There are no known occupied or historic spotted owl sites or 100-acre core areas, as identified in the NWFP, within the project areas. One of the proposed density management treatment units (25-1), totaling approximately 167 acres, as well as an existing road to be decommissioned and portions of the haul routes are located within a spotted owl RPA as delineated within the document entitled *Delineation and Management of Reserve Pair Areas within Oregon's Northern Coast Range Adaptive Management Area*, dated June 1, 2000.

The nearest known occupied owl site is approximately two miles to the north of the northernmost proposed density management unit and more than five miles from the southernmost units. It is not known if spotted owls are currently using any of the project areas because of the lack of current survey data, however based upon the fragmented nature of the forested landscape, distance from nearest known occupied site and the general lack of suitable habitat within the area, it would not be expected that resident owls occupy the area although it is certainly possible that occasional dispersing individuals move through the area.

Private forestlands within the Northern Oregon Coast Range strongly influence the character of the landscape. This is most notable on the east side of the summit where the majority of the land is privately owned and managed for timber production in such a way as to preclude the development and/or maintenance of suitable spotted owl habitat. Recent private logging activity within the area, as well as that likely to occur within approximately the next 5 years, is expected to further reduce the amount of non-federal spotted owl dispersal and suitable habitat within the general area.

The federal lands in that portion of the state including the proposed density management project are distributed in a scattered, non-contiguous fashion and do not lend themselves to the management of larger blocks of suitable habitat for a wide-ranging species such as the spotted owl. Approximately 23% of the BLM land within the Analysis Area or approximately 1,461 acres is considered to be suitable owl habitat. This is based upon a GIS sort of the timber database primarily identifying forest stands which contain a conifer component with at least a 1-bar stocking level¹ that is greater than or equal to 80-years-old. None of these acres of suitable spotted owl habitat are proposed for density management treatments. Considering all ownerships, roughly 6% of the forested stands within the Analysis Area are considered to be suitable habitat for the spotted owl.

¹ 1-bar stocking equates to roughly 10-39% of the canopy closure being derived from that component.

Approximately 45% of the BLM land within the Analysis Area or approximately 2,893 acres is considered to be spotted owl dispersal habitat. Therefore, approximately 68% of the BLM land within the Analysis Area (4,354 acres) is in a condition to facilitate owl dispersal, that is to say is either dispersal or suitable habitat. All of the proposed density management treatment areas within the Baker Creek project, totaling up to approximately 647 acres, are considered to be spotted owl dispersal habitat. This represents approximately 22% of the BLM dispersal habitat within the Analysis Area, or approximately 15% of the BLM habitat when considering both dispersal and suitable owl habitat combined.

The canopy closure of the dispersal habitat proposed for density management is currently quite variable and largely dependent upon the current level of root rot within the stand. Some portions of the proposed units are probably poor quality dispersal habitat based upon stand age and the extreme high density of trees which could inhibit an owl's ability to fly through the stand, while other units with high levels of root rot may have a current canopy closure as low as about 50 percent and dense understory of shrub species including vine maple and oceanspray. Primarily as a function of the stands' ages and lack of vital habitat characteristic including large trees and structural diversity, these stands are not currently considered to be suitable foraging, roosting, and/or nesting habitat.

Although there are no known active owl sites in the vicinity of the proposed project area, many of the proposed treatment units and haul routes are within 0.25 miles of forested stands which are suitable spotted owl habitat and currently unsurveyed.

Marbled Murrelet - (FT)

The Baker Creek project areas are not located within or near designated critical habitat for the marbled murrelet.

Ranging from approximately 28 to 33 miles from the ocean, the project areas are located within marbled murrelet Zone 1 (NWFP C-10). In Oregon, Zone 1 is located in a band up to 35 miles inland and Zone 2 is located 35 to 50 miles from the sea; Zone 1 holds a higher likelihood for murrelet occupancy than Zone 2. With the nearest known occupied murrelet site being approximately 9 miles from the proposed project areas, there are no known murrelet sites within the vicinity of the Baker Creek project areas.

A general description of the marbled murrelet habitat within the Analysis Area and/or the surrounding landscape is included within the various Watershed Analyses and the North Coast LSRA. Approximately 23% of the BLM land within the Analysis Area or approximately 1,461 acres is considered to be potential marbled murrelet habitat. This is based upon a GIS sort of the timber database primarily identifying forest stands which contain a conifer component with at least a 1-bar stocking level² that is greater than or equal to 80-years-old; the vast majority of the these acres could be considered to be very marginal in habitat quality. This is primarily a function of the stands ages and smaller patch sizes. Younger stands generally contain lower densities of potentially suitable nesting platforms within the stands and these platforms are often of questionable suitability. While some of the stands identified as potentially suitable murrelet

² 1-bar stocking equates to roughly 10-39% of the canopy closure being derived from that component.

habitat contain scattered larger or even old-growth trees, the crowns of these trees often extend above the surrounding forest and tend to be more exposed to weather and predators.

Seven proposed treatment units (1-1, 7-1, 25-1, 31-1, 33-1, 35-1 and 35-2) contain, or are in proximity to and contiguous with stands which contain, individual trees and/or small groups of trees which are potentially suitable as murrelet nest trees based upon the presence of potential nesting platforms. With one exception, all of these potentially suitable murrelet nest trees were surveyed to protocol during the 2001 and 2002 survey seasons. There were no detections. Protocol surveys associated with unit 33-1 were started during the 2002 field season and are scheduled to be completed by August 2003. There is no additional potential marbled murrelet habitat identified within or near (within 0.25 miles) any of the other proposed treatment areas.

There are a few scattered large trees located on the BLM land within section 19 (NW1/4 of the NE1/4) along Von Road which have been identified as potential murrelet nest trees. This area has not been surveyed for murrelets and is within 0.25 miles of a proposed haul route accessing at least one proposed density management treatment unit (25-1).

Bald Eagle - (FT)

Bald eagles generally nest and/or roost within mature forest stands within one mile of a large major river or lake, or within 0.5 mile of a major tributary. Although no eagle sightings have been recorded near the proposed project sites, occasional dispersed eagle usage (most likely roosting or resting) may occur throughout or near the project areas where suitable eagle habitat is present. This occasional, dispersed eagle usage would most probably occur during the late fall or winter months. Streams within and near the proposed project areas are generally small headwater streams up to about the 3rd order. These higher gradient, higher elevation streams generally provide little foraging opportunity for bald eagles.

There is suitable eagle habitat within the Analysis Area and within 0.25 miles or a 0.5 miles line of sight distance of some of the proposed action areas and/or haul routes. It is generally limited to scattered individual trees or small groups of trees situated lower in the various watersheds. This habitat is probably best suited for roosting and resting rather than nesting based upon the general lack of suitable nest trees and the fact that the coho salmon and steelhead trout runs within the various river systems are quite depressed. Neither eagle nests nor eagle usage has been observed in these patches of suitable eagle habitat.

Haskins Reservoir (approximately 20 to 25 acres in size) is located just to the north of the project area about 0.5 miles from the nearest wildlife habitat enhancement unit and 2 miles from the nearest density management unit. McGuire Reservoir (currently up to approximately 138 acres in size), is located approximately 0.25 miles from the nearest wildlife habitat enhancement unit and one mile from the nearest density management unit; the dam at McGuire Reservoir is currently being raised to increase the water holding capacity and thus the potential size of the reservoir. After the dam raising project is complete the reservoir will range in size up to about 260 acres. The presence of both of these reservoirs would seemingly enhance the quality of bald eagle habitat within the vicinity of the proposed actions however, bald eagles are rarely seen within this portion of the Coast Range Mountains on the east side of the summit. To the west of

the analysis area, on the west side of the summit, eagles are occasionally seen foraging along the Nestucca River. However, these sightings are generally several miles down the drainage; foraging eagles are rarely seen along the Nestucca River, or generally within the Nestucca drainage, at points east of the Elk Creek/Nestucca River confluence where the river classification changes from a 5th to 6th order stream. This confluence is about nine miles west of the project area.

The nearest known bald eagle nest is historic in nature and located along Elk Creek about 9 or 10 miles west of the proposed project areas.

Survey and Manage Wildlife Species (S&M):

Red Tree Vole

The NWFP and Salem District RMP identify one vertebrate Survey and Manage species that may occur in the area of the Baker Creek Project. This species is the red tree vole, a category 1A species (survey prior to activities and manage known sites). Although the red tree vole is more often associated with larger and older Douglas-fir trees than those commonly found within the proposed treatment units, some of the project areas currently contain potential habitat for the red tree vole.

A total of approximately 560 acres were surveyed for red tree voles in conjunction with the Baker Creek project (see project record document #42). All of the proposed density management treatment units that triggered protocol, thereby requiring pre-project surveys, were surveyed to protocol for red tree voles. Often the individual areas surveyed were somewhat larger than proposed treatment units. Additionally, all of the areas proposed for Wildlife Habitat Enhancement treatments, as well as other areas which are currently not proposed for treatments were surveyed. These surveys resulted in no red tree voles or red tree vole nests being located. *Survey Protocol for the Red Tree Vole* (Version 2.0) was followed for all surveys (see project record document #41).

Mollusks

There are currently three Survey and Manage invertebrate species (mollusks) as identified within the NWFP and RMP with the potential of being located within the proposed treatment units and/or in the general sale area. These species are also included on the Bureau's Manual 6840 Special Status Species List. (see table 1). In general, all of these species are associated with the organic duff layer on the forest floor as well as with habitat types containing CWD, sword ferns and a hardwood component, especially big-leafed maple.

A total of approximately 1098 acres were surveyed for Survey and Manage mollusks in conjunction with the Baker Creek project (see project record document #39). S&M mollusk surveys for the Baker Creek Project were conducted in and near all of the proposed density management units, as well as in other areas which are currently not proposed for density management treatments, in the spring and fall of 2001. "*Survey Protocol for Terrestrial Mollusk Species from the Northwest Forest Plan*" (Draft Version 2.0, Oct. 29, 1997) was followed for all surveys.

The *Final Supplemental Environmental Impact Statement for Amendments to the Survey and Manage, Protection Buffer, and other Mitigation Measures Standards and Guidelines* (USDA and USDI, November 2000) determined that new information indicated that 72 species, in all or part of their range, were secure or otherwise did not meet the basic criteria for Survey and Manage. The *Record of Decision for Amendments to the Survey and Manage, Protection Buffer, and other Mitigation Measures Standards and Guidelines* (USDA and USDI, January 2001) removed these species from the S&M list in all or part of their range. Two of these species, the blue-gray tail-dropper (*Prophysaon coeruleum*) and the papillose tail-dropper (*Prophysaon dubium*) had been surveyed for in or near the Baker Creek project area with approximately 7 papillose tail-dropper “known sites” being located in or near the proposed treatment units (see project record document #38). As per the *Record of Decision for Amendments to the Survey and Manage, Protection Buffer, and other Mitigation Measures Standards and Guidelines* (USDA and USDI, January 2001) guidelines to manage these sites are not required.

After the Survey and Manage mollusk surveys were complete, the warty jumping-slug (*Hemphillia glandulosa*) was removed from the list as a result of the 2001 annual species review. The warty jumping-slug had been surveyed for in or near the Baker Creek project area with approximately 15 “known sites” being located in or near the proposed treatment units (see project record document #38). As per the *Record of Decision for Amendments to the Survey and Manage, Protection Buffer, and other Mitigation Measures Standards and Guidelines* (USDA and USDI, January 2001) guidelines to manage these sites are not required. The Warty Jumping-slug is currently on the Bureau’s Manual 6840 Special Status Species list as a “Bureau Tracking” species.

In addition to the warty jumping-slug and papillose tail-dropper sites discussed above, surveys resulted in five Oregon Megomphix (*Megomphix hemphilli*) and three Puget Oregonian (*Cryptomastix devia*) known sites being located (see project record documents #38 and #39). Seven of these sites are located within section 7 of T4S., R5W., and one is located within section 19 of T3S., R5W.. No treatments are currently proposed within the vicinity of the known site located within section 19. The Oregon Megomphix and Puget Oregonian are Survey and Manage category 1A species - (survey prior to activities and manage all known sites).

The Oregon Megomphix and Puget Oregonian are strongly associated with hardwood trees, particularly bigleaf maple, within conifer forests. Additional habitat features include, uncompacted, cool, moist soils; hardwood leaf litter; abundant later decay class large and small woody debris. Favorable habitat features also include sword ferns, hazel and mosses growing on the trunks of big-leaf maple.

As a result of these discoveries and to manage these known Oregon Megomphix and Puget Oregonian sites in a manner as to maintain and enhance the presence of the species at the site, “Habitat Areas” would be established as per *Management Recommendations for Terrestrial Mollusk Species, Megomphix hemphilli, the Oregon Megomphix v.2.0*, (November 1999) and *Management Recommendations for Terrestrial Mollusk Species Cryptomastix devi, the Puget Oregonian v.2.0*, (November 1999), where appropriate. The bulk of these known sites are

located near or within Riparian Reserves and/or the edge of a proposed treatment unit. As per the criteria contained within the Management Recommendations, the Oregon Megomphix and Puget Oregonian have not been determined to be “locally common.”

The Habitat Areas would be configured in such a way as to provide protection to the sites and maintain the sites’ current micro-climate. Maintenance of the current canopy closure within the Habitat Area would help provide protection to the sites’ current conditions through maintaining a well-shaded forest floor in and adjacent to the known sites and assuring a continued supply of leaf litter and CWD to the forest floor. If post-harvest, burning takes place, the integrity of Habitat Areas would be maintained by using appropriate fire protection measures. The following general descriptions of the expected configurations of the Habitat Areas based upon the type of treatments proposed are provided for the purposes of impact analysis:

- ! In areas where the post harvest canopy closure within 200 feet of the site center is expected to be 60% or greater, maintain a no-cut, no-entry buffer with a radius of at least 50 feet. No patch cuts would occur within a 200-foot radius from the site center.
- ! In areas where the post harvest canopy closure within 200 feet of the site center is expected to be less than 60%, maintain a no-cut, no-entry buffer of at least a 100-foot radius. No patch cuts would occur within a 200-foot radius from the site center.
- ! Reserve all hardwoods within a 200-foot radius from the site center.

Other Special Status Species:

Amphibians and Reptiles:

Columbia Torrent Salamander - (BS) Bureau Sensitive

The Columbia torrent salamander is strongly associated with the splash zone directly adjacent to permanently flowing streams and seeps. Suitable habitat for this species is located entirely within the no-harvest buffers of the riparian reserves that are situated within and/or adjacent to the proposed treatment units.

Birds:

Peregrine Falcon - (BS)

The peregrine falcon was officially delisted from the ESA species list, effective 8/25/99; it is now treated as “Bureau Sensitive” under the Bureau’s Special Status Species Policy. There have been no peregrine falcon sightings recorded in the area of the proposed action. The habitat within and around the proposed action is not suitable for falcon nesting. It will receive no further analysis in conjunction with the Baker Creek project.

Northern Goshawk - (BS)

Goshawks are generally associated with older conifer stand types with closed canopies, but have also been seen in younger seral and mixed stands. Goshawks are extremely rare in the Coast

Range and though thought to be possible, they have not been documented as breeding in the Northern Oregon Coast Range. Although goshawks have not been observed in the vicinity of the project area, migrating or dispersing birds could periodically use forested stands within and near the project areas.

Mammals:

NWFP Bats

In addition to the red tree vole, which is a Survey & Manage Species, the NWFP identifies five species of bats that would benefit from additional habitat protection. Four of these five species have potential of being located within or near the proposed action areas. These species include the fringed myotis, long-eared myotis, long-legged myotis, and the silver-haired bat. All of these bat species are known to inhabit immature coniferous forest and may forage near riparian areas, open areas, and along forest edges while utilizing large hollow trees for roosting, hibernating, and maternity colonies.

There are no known bat roosting or hibernaculum sites within the project area. Surveys for these species are required under the NWFP if caves, mines, or abandoned wooded bridges and buildings are within or near the project area. There are none of these habitat types or structures within or near the project area therefore no bat surveys are required. No bat surveys are scheduled to be conducted within or near the Baker Creek project area.

Townsend's Big-Eared Bat - (BS)

In addition to the bat species identified within the NWFP, one species of bat, Townsend's big-eared bat, is covered by the Bureau's Special Status Species Policy. Townsend's big-eared bats are seldom abundant but are known to occupy a variety of habitats. In western Oregon, these bats are associated with coniferous forests, but they are also considered characteristic dwellers of caves, abandoned mines, and buildings. No caves, abandoned mines or buildings are known to be located within the vicinity of the proposed action. Some of the more open forested and riparian habitats within and near the proposed treatment units could function as foraging habitat and it is possible although rather unlikely that this species of bat could be encountered within or near the proposed project area.

Other Species of Concern

Roosevelt Elk and Black-Tailed Deer

Roosevelt elk and black-tailed deer use a wide range of habitat types and use of the proposed sale area by these species is considered moderate. The quality of the habitat for these species in the sale area is considered to be good. This is based on the fact that areas affording hiding cover are adjacent to, and interspersed with, areas seeded for forage and/or containing adequate browse. The relatively high density of roads within some portions of the project area may limit the relative habitat quality of the area, especially for Roosevelt elk, however the fact that much of the area is behind gates which are often closed would serve to minimize the potential negative impacts associated with some of the areas of high road density.

ENVIRONMENTAL CONSEQUENCES

Resulting from the Alternatives of the Baker Creek Density Management Projects

ALTERNATIVE 1

Alternative 1 includes density management through a combination of cable and ground-based logging systems and all proposed road and landing construction, reconstruction and decommissioning. A detailed description of the activities proposed under alternative 1 and the incorporated design features are included in Chapter 2 of the EA. It proposes density management within 11 treatment units totaling approximately 647 acres, approximately 431 acres within the AMA land allocation and approximately 216 acres within the Riparian Reserves.

In general, the density management project has been designed to promote the long-term development of late-seral stage habitat while minimizing or mitigating expected short-term adverse impacts. The project is primarily intended to increase the average tree diameter, increase the growing space dedicated to crown and limb development, and enhance the existing tree species diversity. Density management thinning would greatly increase the rate at which these younger stands developed larger and more windfirm overstory trees. Larger individual trees would eventually develop into larger size snags and down wood, both of which in most units are lacking in the more recent decay classes. Reserving all hardwoods greater than 10" would not only maintain and enhance species diversity within the stand, but add to the structural diversity of the overstory and help maintain or increase nesting opportunities for many cavity nesting species. It is expected that development of the understory would also be enhanced as vegetation responds to the thinning. This would include understory herb and shrub species as well as conifer and hardwood regeneration.

The project proposes to thin portions of one of the treatment units totaling approximately 54 acres with a heavier thinning prescription followed by site preparation and planting in order to manage the *Phellinus weirii* infestations. This would result in a post-thinning canopy closure of 30 to 40%. Although the remaining 593 treatment acres also contain areas infested with *Phellinus weirii*, (most notably approximately 36 acres within 4 units) that may be thinned somewhat wider or include "patch-cuts" to manage the root disease, on average these stands will be treated with a light to moderate thinning prescription resulting in a stand average, post-thinning canopy closure which is expected to be greater than 40%.

While project design features to minimize the potential for adverse impacts to existing CWD have been included, it is expected that the majority of small snags within the treatment units will be inadvertently knocked over during felling or yarding, or intentionally felled for reasons of safety. It is also likely that the substrate of some of the larger, decay class 3, 4 and 5 logs will be damaged during yarding. To offset these expected adverse impacts, project-wide and unit specific mitigation measures addressing CWD objectives have been designed considering a number of factors. These factors include the following: stand data, including existing CWD levels and mean tree diameter; existing levels of *P. weirii* root rot; proposed yarding system; and the proximity of the density management unit to wildlife habitat enhancement units. Incorporated mitigation measures include retaining the larger green reserve trees felled in the

creation of cable yarding corridors and skid trails; snag creation in seven of the proposed density management treatment units (1-1, 1-2, 7-1, 31-1, 33-1, 35-1 and 35-2); retaining large trees with deformities at least in proportion to their current occurrence in the treated stands; retaining all large conifers greater than a unit-specific designed upper diameter limit (18-24 inches DBH); maintaining live tree stocking levels which allow for growing larger trees as a source of future CWD more rapidly; retaining no-harvest buffers on streams and other unthinned patches to allow for suppression mortality as well as meet other management objectives; and retaining all trees within the “no-harvest” riparian buffers which are cut to facilitate the construction of yarding corridors as CWD.

Species listed or proposed under the Endangered Species Act:

In accordance with regulations pursuant to Section 7 of the Endangered Species Act of 1973, as amended, formal consultation with the USFWS concerning the potential impacts of implementing Alternative 1 of the Baker Creek Density Management Project upon the spotted owl, marbled murrelet and bald eagle has been completed. The Baker Creek project was included within the programmatic habitat modification biological assessment prepared by the interagency Level 1 Team (terrestrial subgroup) for FY 2003-2004 projects within the North Coast Province which may modify the habitat of bald eagles, northern spotted owls and marbled murrelets (Biological Opinion *USFWS reference 1-7-02-F-958*) under the categories of “heavy thinning” and “light to moderate thinning”. Should the project not be implemented within FY 2004 as currently planned but rather in a subsequent year, the project would likely be resubmitted for inclusion in the next appropriate programmatic consultation.

Any ESA consultation required on the subsequent maintenance of trees planted as a part of this project, (such as in root disease centers or on landings) would likely be accomplished by inclusion of the maintenance work within the Programmatic Biological Assessment for Activities in the North Coast Province which might disturb bald eagles, northern spotted owls or marbled murrelets which is prepared by the North Coast Province Interagency Level 1 Team.

Note: On July 16, 2002 elements of the Baker Creek project were discussed at the quarterly meeting of the North Coast Province Interagency Level 1 Team held at the BLM Salem District Office. On February 4, 2003 a field tour of the Baker Creek Density Management Project and Wildlife Habitat Enhancement Project was conducted by BLM Tillamook Resource Area staff for USFWS Biologists Paul Bridges and Bridget Tuerler.

Northern Spotted Owl - (FT)

One of the proposed density management treatment units (25-1) totaling approximately 167 acres, as well as an existing road to be decommissioned and portions of the haul routes are located within a spotted owl RPA as delineated within the document entitled *Delineation and Management of Reserve Pair Areas within Oregon's Northern Coast Range Adaptive Management Area*, dated June 1, 2000. The proposed density management project and road decommissioning is fully consistent with the management recommendations contained within this document.

The project area is not located in or near spotted owl designated critical habitat therefore, the proposed project would be of “*NO EFFECT*” upon spotted owl designated critical habitat.

Many of the proposed density management treatment units including the roads to be constructed, reconstructed and/or decommissioned, as well as portions of the haul routes are within 0.25 miles of suitable spotted owl habitat which is currently unsurveyed. Although there are no known occupied sites within the vicinity of the proposed project, alternative 1 would be expected to result in the generation of noise above the ambient level with 0.25 miles of this unsurveyed suitable owl habitat during the critical and non-critical breeding periods.

Approximately 23% of the BLM land within the Analysis Area or approximately 1,461 acres is considered to be suitable owl habitat. This is based upon a GIS sort of the timber database primarily identifying forest stands which contain a conifer component with at least a 1-bar stocking level³ that is greater than or equal to 80-years-old. None of these acres of suitable spotted owl habitat are proposed for density management treatments. Approximately 45% of the BLM land within the Analysis Area or approximately 2,893 acres is considered to be spotted owl dispersal habitat. Therefore, approximately 68% of the BLM land within the Analysis Area (4,354 acres) is in a condition to facilitate owl dispersal, that is to say is either dispersal or suitable habitat.

All of the areas proposed for density management treatment under Alternative 1, totaling up to approximately 647 acres, are considered to be spotted owl dispersal habitat. This represents approximately 22% of the BLM dispersal habitat within the Analysis Area, or approximately 15% of the BLM habitat which is in a condition to facilitate owl dispersal when considering both dispersal and suitable owl habitat.

While there are some potential short-term adverse impacts to the dispersal habitat proposed for thinning, the majority of these acres (92%) are expected to continue to function as dispersal habitat post-harvest. This is based upon the fact that the average post-harvest canopy closure for approximately 593 acres is expected to be greater than 40%; it is expected to be approximately 50%. While small openings, patch-cuts, areas thinner wider to control root disease, roads, and landings may result in isolated portions of these thinning treatment areas having a post-treatment canopy closure of less than 40%, these portions of the project area being proposed for thinning as a whole are not expected to be removed from a condition to function as spotted owl dispersal habitat.

While the majority of the stands proposed for density management are not expected to be removed from a condition to function as dispersal habitat, approximately 54 acres of the treatment areas, those most severely infested with root rot, are expected to have an average post-harvest canopy closure of approximately 30-40 %; this is expected to result in these acres being removed from a condition which spotted owls would likely use for dispersal. These acres are contained within units 25-1. It is questionable as to if some of these highly infected areas are currently capable of functioning as spotted owl dispersal habitat based upon the stand condition.

³ 1-bar stocking equates to roughly 10-39% of the canopy closure being derived from that component.

Trees within the infection centers are generally compromised and the canopy closure has been greatly impacted in some areas. It is estimated that the canopy closure may currently be below 40% in some areas . . . portions of the stand are “breaking up”. It is doubtful that some of these infection centers are currently on a trajectory of reaching a condition of late-seral stage habitat. Post-treatment, it is expected that the trajectory of the stands development would be heading toward reaching the objectives for the stands. Removal of these acres represents 0.01% of the available 4,354 acres of federal habitat within the analysis area that is capable of facilitating owl dispersal (both the dispersal and suitable habitat).

Aside from the attention to canopy closure, the project incorporates other design features to minimize or mitigate the potential for adverse impacts and to promote the development of late-seral stage habitat within the treated stands. Some of these design features include the retention and creation of CWD (both snags and down logs); retention of larger hardwoods and conifers and other trees determined to have features desirable to wildlife; clumps and gaps in the distribution of the retained overstory trees; and as appropriate, reforestation of landings, cable corridors, created gaps and/or areas infected by *Phellinus weirrii*.

The proposed thinning is expected to result in increased or maintained growth rates of the understory conifer and shrub species as well as the trees retained within the overstory. This would result in the development of some features of spotted owl suitable habitat earlier than would occur without treatment. These features include large trees within the overstory which would be potential sources of future snags and down logs, and generally a more diverse and/or complex vertical and horizontal stand structure.

Alternative 1 *MAY AFFECT* and is *LIKELY TO ADVERSELY AFFECT* the spotted owl based upon the fact that it would result in an increased potential for disturbance of unsurveyed suitable habitat during the critical and non-critical breeding periods, and approximately 647 acres of dispersal habitat would be impacted. Approximately 593 acres of this dispersal habitat would not be expected to be removed from a condition to facilitate owl dispersal, while approximately 54 acres would be expected to be removed from a condition to function as dispersal habitat based upon the expected post-harvest canopy closure of 30-40%.

Marbled Murrelet - (FT)

The project area is not located in or near murrelet designated critical habitat therefore it would have *NO EFFECT* upon marbled murrelet designated critical habitat.

Seven proposed density management treatment units (1-1, 7-1, 25-1, 31-1, 33-1, 35-1 and 35-2) contain, or are in proximity to and contiguous with stands which contain, individual trees and/or small groups of trees which are potentially suitable as murrelet nest trees based upon the presence of suitable nesting platforms. With one exception, all of these potentially suitable murrelet nest trees were surveyed to protocol during the 2001 and 2002 survey seasons. There were no detections. Protocol surveys associated with unit 33-1 were started during the 2002 field season and are scheduled to be completed by August 2003. There is no additional potential marbled murrelet habitat identified within, or contiguous and near (within 0.25 miles) any of the other proposed treatment areas.

The density management project does not include daily time restrictions (two hours after sunrise to two hours before sunset) based upon the fact that in general all suitable murrelet habitat within 0.25 miles of the treatment units would be surveyed. An exception to this is any log hauling to the north on Von Road. Hauling would be expected to raise the ambient noise level adjacent to a small clump of trees that may contain potentially suitable nesting platforms that are currently unsurveyed for murrelets; daily time restrictions would be required on hauling on Von Road between April 1 and September 15.

No potentially suitable murrelet nest trees would be felled as a part of the Baker Creek project and where possible no openings would be created within one tree length surrounding a potential murrelet nest tree. However, thinning in the vicinity of these potentially suitable nest trees will change the current and future character of the treated stands. This may have some impact (beneficial and/or adverse) upon the likelihood that at some point in the future these trees are used successfully by murrelets for nesting. As discussed above relative to the promotion of suitable spotted owl habitat, the Baker Creek project is expected to result in the development of some features of marbled murrelet suitable habitat earlier than would occur without treatment. These features include large trees within the overstory with platforms suitable for murrelet nesting and generally a more diverse stand structure within the areas treated.

Alternative 1 *MAY AFFECT* and is *LIKELY TO ADVERSELY AFFECT* the marbled murrelet based upon the fact that thinning would occur within seven treatment units which are the vicinity of and contiguous with, surveyed potentially suitable marbled murrelet nest trees, as well as there is a likelihood that log hauling may occur during portions of the critical and/or non-critical breeding season within 0.25 miles of unsurveyed potential murrelet habitat.

Bald Eagle - (FT)

The nearest known bald eagle nest is historic in nature and located along Elk Creek about 9 or 10 miles west of the proposed project areas.

It is possible that a limited number of scattered individual trees or small groups of trees which are suitable for roosting or resting may be located within 0.25 miles (or a 0.5 miles line of sight distance) of the several of the proposed treatment units or along portions of the various haul routes. This is most likely for those haul route segments or treatment units located at points situated lower in the watersheds such as unit 7-2. These small isolated patches of bald eagle suitable habitat are probably best suited for roosting and resting rather than nesting based upon the general lack of suitable nest trees and the fact that the coho salmon and steelhead trout runs within the area are quite depressed. No eagles or eagle nests have been observed within the vicinity of any of the proposed treatment units or haul routes however, occasional dispersed eagle usage (roosting, resting) may occur throughout the area where suitable habitat is present.

The potential dates of operation for the proposed project are such that activities may occur which would generate noise above the ambient level during the eagle breeding season (January 1 to August 31. It has been determined that Alternative 1 *MAY AFFECT, and NOT LIKELY TO ADVERSELY AFFECT* the bald eagle. This is primarily based upon an increased potential for

disturbance during the breeding season as a result of harvesting within a portion of the density management treatment units, as well as potentially hauling along portions of the various haul routes.

Survey and Manage Wildlife Species (S&M)

Red Tree Vole

Although the red tree vole is generally associated with much larger and older Douglas-fir trees than those found in the vicinity of the proposed action, the project area currently contains potential habitat for the red tree vole.

All of the proposed treatment units which require pre-project surveys have been surveyed to protocol for red tree voles; these surveys resulted in no red tree voles or red tree vole nests being located. (See project record document #41). *Survey Protocol for the Red Tree Vole* (Version 2.0) was followed for all surveys.

There would be some long-term benefits to the development of higher quality red tree vole habitat resulting from the effects of thinning within the 11 proposed treatment units which total approximately 647 acres. This is based upon the fact that the treatment is expected to maintain a post-harvest average canopy closure of greater than 40% in most of the treated areas, (up to about 50% is expected) and trees generally favored for retention would be the largest within the stand. The reserve trees are expected to respond to the thinning with an accelerated growth rate and increased crown development within a few years after the harvest. This would result in a higher quality of vole habitat within these units sooner than would be expected to develop without treatment. There are no expected short-term positive or negative impacts to the red tree vole resulting from the proposed thinning. This is based upon the fact that all action areas containing suitable habitat have been surveyed to protocol and found to be unoccupied by red tree voles.

S&M Mollusks

Survey and Manage mollusk surveys for the Baker Creek Project were conducted in and near all proposed density management units in the spring and fall of 2000. “*Survey Protocol for Terrestrial Mollusk Species from the Northwest Forest Plan*” (Draft Version 2.0, Oct. 29, 1997) was followed for all surveys. As per the discussion within the Affected Environment section above, pre-project mollusk surveys resulted in a total of eight S&M mollusk sites being located (Oregon Megomphix and Puget Oregonian) (see project record document #40).

As a result of these discoveries and to manage these known Oregon Megomphix and Puget Oregonian sites in a manner as to maintain and enhance the species at the site, “Habitat Areas” would be established as per *Management Recommendations for Terrestrial Mollusk Species, Megomphix hemphilli, the Oregon Megomphix v.2.0*, (November 1999) and *Management Recommendations for Terrestrial Mollusk Species Cryptomastix devi, the Puget Oregonian v.2.0*, (November 1999), where appropriate. The Habitat Areas would be configured in such a way as to provide protection to the sites and maintain the sites’ current micro-climate. Maintenance of the current canopy closure within the Habitat Area would help provide protection to the sites’

current conditions through maintaining a well-shaded forest floor in and adjacent to the known sites and assuring a continued supply of leaf litter and CWD to the forest floor. If post-harvest, burning takes place, the integrity of Habitat Areas would be maintained by using appropriate fire protection measures. The following general descriptions of the expected configurations of the Habitat Areas based upon the type of treatments proposed are provided for the purposes of impact analysis

In addition to the protection of known sites within and near the density management treatment units, there are several project design features which help reduce the potential for short and longer term adverse impacts to S&M and other mollusks species and/or their habitats throughout the general project areas. These additional design features include but are not limited to reserving all hardwoods greater than 10" DBH; where appropriate, incorporating red alder and/or bigleaf maple into reforestation plantings which may include landings, cable corridors, created gaps and/or areas infected by *Phellinus weirri*; protecting and reserving existing CWD; minimizing disturbance to the existing organic duff layer by designating skid trails and minimizing the use of fire; and maintaining a post-harvest canopy closure which averages approximately 50% in most areas.

The proposed action would not be expected to result in the elevation of the status of those mollusk species currently on the Bureau's 6840 Special Status Species list to any higher level of concern including the need to list under the ESA.

Even though measures are incorporated into the proposed action to minimize soil disturbance, it would not be totally eliminated. Within thinning units this usually results in red alder naturally seeding into areas with disturbed soil if a seed source is available; the proposed action is expected to result in an increased amount of alder growing within portions of the treatment units which would be expected to result in some benefit to the quality of future mollusk habitat within the treated stands.

Other Special Status Species of Wildlife:

Implementation of Alternative 1 would not be expected to result in the loss of population viability for any Special Status Species that may occur in the project area, or result in the need to elevate their status to any higher level of concern including the need to list under the ESA.

Amphibians and Reptiles:

Columbia Torrent Salamander - (BS)

The Columbia torrent salamander is directly associated with the splash zone of permanently flowing streams and seeps. Suitable habitat is located within the riparian reserves located within and adjacent to the proposed units.

In general, the "no-harvest" riparian buffers would provide adequate protection to any Columbia torrent salamanders and torrent salamander habitat within the area. The yarding corridors needing to be created through the riparian areas would not be expected to appreciably reduce the

quality of the habitat within these areas especially given the fact that full suspension would be required across the creeks and all trees needing to be cut within these buffers would be retained on site as CWD. The proposal within unit 25-1 to create six wide thinning patches located within the inner portion of the riparian reserve includes measures to protect streamside values including torrent salamander habitat. It would be expected that full shade within the riparian area would rapidly recover as the retained and/or planted trees and brush species take advantage of the created openings.

Birds:

Northern Goshawk - (BS)

The proposed action is expected to have no, or a negligible short-term impact upon goshawks and goshawk habitat. This is based upon the low likelihood of goshawks currently utilizing the area, the maintenance of the "no-harvest buffers" within the riparian reserves, the light nature of most of the proposed thinning prescriptions, and the dispersed nature of the treatment units which are often intermingled with other areas not proposed for treatment. The density management treatments would be expected to result in long-term benefits to goshawk habitat by maintaining or increasing the growth rates of reserve trees, and promoting snag development thus aiding the development of some late-seral stage habitat features.

Mammals:

Bats

There are no known bat roosting or hibernaculum sites within the project area.

Bats are known to forage near riparian areas, open areas, and along forest edges. The Baker Creek project would be expected to immediately improve the quality of bat foraging habitat within some portions of the density management units by opening up the canopy and creating small fragmented gaps in an otherwise closed canopy. The project's design features for CWD, snag and green tree protection and retention, including those trees with features desirable to species such as bats, should provide adequate structure for roosting or resting bats and greatly reduce any short- and/or long-term adverse impacts to bats which may result from the proposed project. Within the units proposed for thinning, there is potential for long-term benefits to bats based upon the fact that the treatment would favor the development of some older forest characteristics favored by these species.

Other Species of Concern

Roosevelt Elk and Black-Tailed Deer

It is expected that the Baker Creek project would temporarily displace individual deer and elk as they react to the disturbance created by implementation and increased human presence within the vicinity of the treatment units. This would not impact the health of the populations based upon the expected limited length of time of the disturbance and the fact that other, relatively undisturbed suitable habitat is present within the vicinity of the proposed action.

Overall, the density management treatments which are interspersed with denser areas of cover

not proposed for thinning, are expected to result in an improvement in the habitat quality available for elk and deer. Within the treatment units, the vigor of the herb and shrub understory layers would be greatly increased thereby improving the quality of available browse and/or forage. Additional design features contributing to the overall improvement of habitat and/or the minimization of negative impacts include the basic configuration of the units, light nature of the proposed treatments, maintenance of visual buffers along some portions of the busier, arterial or collector roads, and the proposal to obliterate many of the roads accessing the units at the completion of the harvest thereby resulting in a decrease of approximately 8000 feet of road within the Analysis Area.

Although the proposed treatments could have a slight, adverse short-term impact upon escape and/or thermal cover for big game in portions of the thinned units, other suitable thermal and/or escape cover exists within the general area. These areas include within the no-harvest buffers within riparian reserves and in the other intermingled areas not proposed for treatment. Areas which are thinned would continue to function, in some regard as cover for big game; thinned stands should still serve to help moderate temperature and wind extremes, as well as in some regard, serve as a visual buffer. The project would not be expected to result in a short-term reduction of available cover to the point where it would become a limiting factor, adversely impacting the population health of big game species. Additionally, thermal cover is probably less important or limiting within the Coast Range of northern Oregon than in other portions of these species' range, due to the relatively mild winters and summers within the region.

ALTERNATIVE 2 - (The “No Action” Alternative)

Under the “No Action” Alternative, no forest management activities would occur within the 647 acres of proposed project areas at this time and the forested stands would continue to grow and develop without management intervention. The identified impacts of the action alternative would not occur at this site at this time. Another project area would likely be selected to replace the proposed project and the associated PSQ timber volume resulting from the density management treatment of the approximately 431 acres of stands within the AMA land allocation, potentially resulting in impacts of a similar nature at a different location.

Under the “No Action” alternative, the density management treatment of approximately 216 acres of densely stocked forest within the Riparian Reserve allocation as proposed under the alternative 1 would not occur. No existing roads would be decommissioned. The expected benefits from density management treatment and road decommissioning to attaining the ACS objectives and the development of some features of late-seral stage habitat would be expected to occur in a slower time frame than with the implementation of the action alternative as the untreated stands continue to develop naturally. Additional discussion and data of the expected impacts of the “No Action” alternative upon the forest's development is located within the *Silvicultural Prescription for the Baker Creek Density Management Project* – Appendix 2.

Selection of the “No Action” Alternative would be of *NO EFFECT* upon the marbled murrelet and spotted owl (and their critical habitat) as well as the bald eagle and all other species listed under the ESA. In addition, it would not be expected to adversely impact (result in a loss in

population viability or elevate their status to any higher level of concern) any of the wildlife S&M, Special Status, or other Species of Concern discussed above.

WILDLIFE HABITAT ENHANCEMENT PROJECTS

The desired future condition for these stands include late-seral-stage habitat with a CWD (Coarse Woody Debris) level equal to the High Level as described within the LSRA. A high level of CWD for stands of these ages is defined as 3200 to 5940 cubic feet of CWD per acre. In addition, this CWD would ideally be spread across all decay classes with approximately half of the volume being in snags and half in down logs. The current levels and conditions of the CWD within the proposed wildlife habitat enhancement treatment units is contained within table 2.

The proposed wildlife habitat enhancement projects include snag and down woody debris creation through the treatment of selected individual and small groups of Douglas firs. In areas heavily affected with root disease, treatments include the planting of disease tolerant or resistant species.

Affected Environment: Wildlife habitat enhancement projects are proposed to be implemented on a total of 298 acres distributed within 12 treatment units located within Township 3 South, Range 5 West, Sections 17 and 19; and Township 3 South, Range 6 West, Sections 13, 23, 24, 25 Willamette Meridian. While the proposed wildlife habitat enhancement projects are located within three different 6th field watersheds (Haskins Creek, Panther Creek, and Baker Creek) they are all located within the North Yamhill River 5th field watershed.

As proposed, the wildlife habitat enhancement project would treat approximately 188 acres within the AMA (Adaptive Management Area) land allocation and 110 acres of Riparian Reserve as identified in the NWFP and Salem District RMP. There are no unmapped LSRs within the vicinity of the proposed action. All of the streams associated with the Riparian Reserves within the project areas are above man-made reservoirs (Haskins and City of Carlton), barrier falls and/or smaller streams and therefore at least approximately 0.25 miles from the nearest potential habitat of Upper Willamette steelhead, the only listed fish species within the area.

All of the areas proposed for wildlife habitat enhancement, are located within the acreage identified within the 15% Analysis Documentation (as updated 11/15/99) as helping to meet the 15 Percent Retention Standard and Guideline. All of the wildlife habitat enhancement treatments have been designed to promote the development of late-seral habitat, or to enhance the current quality of late-seral habitat by promoting the development of certain important habitat features. Implementation of the habitat enhancement projects would help better achieve the objectives of the 15% S&G, as well as AMA and Riparian Reserve land allocations.

According to the FOI (Forest Operations Inventory) database, stands to be treated with the wildlife habitat enhancement treatments range in age from about 80- to 120-years-old. Douglas fir dominates all the stands however western hemlock, western redcedar, grand fir as well as bigleaf maple and red alder can also be found in some of the stands. Although there is some

variability, many of the stands proposed for treatment are relatively diverse in terms of vertical and/or horizontal stand structure. This is largely a function of past management, stand age and/or the presence of laminated root rot disease. Current CWD levels within the proposed wildlife habitat enhancement treatment units are shown on Table 2.

There are no known special habitats (e.g., talus slopes, cliffs, caves, mines or abandoned wooden bridges) within the vicinity of the proposed project areas.

Table 2. Current CWD levels within the Proposed Wildlife Habitat Enhancement Treatment Units							
Unit Number	Approx. Acreage	Snag Volume CubicFt/Ac		Down Log Volume CubicFt/Ac		Total CWD Volume CubicFt/Ac	% of Total CWD Volume that is in Snags
		Hard Snags ⁴	Soft Snags ⁵	Hard Logs ⁴	Soft Logs ⁵		
W17-1	15	0	144	69	4894	5107	3%
W17-2	5	6	44	408	2423	2881	2%
W17-3	16	27	465	38	1706	2236	22%
W13-1	55	15	711	1324	852	2902	22%
W19-1	26	16	31	473	572	1092	4%
W24-1	46	134	198	506	361	1199	28%
W23-1	60	89	884	1556	1450	3979	24%
W23-2 ⁶	18	-	-	-	-	-	-
W23-3 ⁷	10	0	2021	7091	0	9112	22%
W23-4	17	0	303	1344	154	1801	17%
W25-1	4	0	50	237	1909	2196	2%
W25-2	26	5	843	49	4097	4994	17%
Total Acres	298						

Northern Spotted Owl

All of the areas proposed for treatment with a wildlife habitat enhancement project are located within the Kutch/Panther spotted owl RPA (Reserve Pair Area) and it is largely based upon this fact that the areas proposed for treatment were identified for habitat enhancement. RPAs were delineated within the document entitled *Delineation and Management of Reserve Pair Areas within Oregon's Northern Coast Range Adaptive Management Area*, dated June 1, 2000. This document is considered supplemental management guidance to the *Northern Coast Range*

⁴ A decay class of "Hard" includes decay classes 1 and 2 (Cline et al 1980)

⁵ A decay class of "Soft" includes decay classes 3, 4 and 5 (Cline et al 1980)

⁶ CWD data was not collected within Unit W23-2. Current levels of CWD were observed as being high, especially in down logs, due to an extensive root rot infestation.

⁷ Data for unit W23-3 is based on that gathered from only two fixed plots – therefore less confidence should be placed in data quality.

Adaptive Management Area Guide and the LSRA (*Late-Successional Reserve Assessment for Oregon's Northern Coast Range Adaptive Management Area*) and recommends the creation of snags and down wood within the RPAs.

The project areas are not within designated critical habitat for the spotted owl. The nearest spotted owl site is located approximately 0.25 miles from one of the proposed treatment units. A female spotted owl was documented to be occupying this site during the 2002 breeding season; surveys are currently scheduled to be conducted at this site during the 2003 survey season. While all of the proposed wildlife habitat enhancement units are considered to be suitable habitat for the spotted owl, some of these stands, or portions of the stands, are considered to be of a marginal habitat quality based upon stand age, lack of CWD, simple stand structure, small patch size, and/or the placement on the landscape. In addition, some of the areas are exhibiting an extreme level of root rot infestation resulting in a low canopy closure.

Marbled Murrelet

The project areas are not within designated marbled murrelet critical habitat. With the nearest known occupied marbled murrelet site being approximately eight miles from a proposed treatment unit, there are no known occupied murrelet sites within the vicinity of any of the proposed wildlife habitat enhancement project areas. Individual trees with suitable marbled murrelet nesting platforms are present in portions of some of the units.

Bald Eagle

The nearest known eagle nest, which is historical in nature, is located approximately eight miles from the nearest proposed wildlife habitat enhancement unit. Based upon stand age and proximity to McGuire Reservoir, portions of some of the habitat enhancement units are considered to be suitable habitat for the bald eagle although no suitable eagle nest trees have been identified; this habitat is probably better suited for roosting or resting rather than nesting.

Project Design Features: All wildlife habitat enhancement treatments have been designed to protect and enhance the development of late-seral habitat features. Wildlife habitat enhancement projects are proposed to be implemented on a total of 298 acres distributed within 12 treatment units. Projects in general include snag and down wood creation, which in some situations where possible, may be implemented in such a way as to provide additional growing space to individual overstory trees, and/or release selected shade-tolerant understory regeneration. The proposal calls for the treatment of 651 trees; 493 would be converted into snags or snag topped green trees, and 158 trees would be felled for CWD. In areas within three units totaling up to 58 acres that are heavily infested with root disease, treatments basically involve the interplanting of disease tolerant or resistant species and the associated site preparation; subsequent maintenance of these planted units would be accomplished under the Tillamook Resource Area Categorical Exclusion prepared for the various silvicultural treatments involved in young stand management (CX# OR-086-00-09).

All of the projects, which result in the generation of noise above the ambient level or require climbing more than 25 feet into the canopy, would be implemented between August 6 and February 28. Within this time period, the work within the various units would be scheduled to

help further minimize the potential for negative impacts resulting from noise disturbance. Between August 6 and September 15, daily time restrictions would apply to work conducted within 0.25 miles of unsurveyed suitable marbled murrelet habitat; daily time restrictions would confine work to the period of time between two hours after sunrise and two hours before sunset.

No tree which is potentially suitable as nest tree for the spotted owl or marbled murrelet, or contains a suspected nest of any other bird or mammal would be treated. In addition, no tree adjacent to a potentially suitable spotted owl or marbled murrelet nest tree or any tree containing a suspected nest of a bird or mammal would be treated. Felling of trees would be conducted in such a way as to assure no damage to potentially suitable spotted owl or marbled murrelet nest tree, or any tree containing a suspected nest of a bird or mammal. Treated trees would generally not be located within approximately 150 feet (and/or downslope) of an open road to reduce the potential for the creation of safety hazards and/or the likelihood that the material would be stolen or sold as firewood. In addition, created snags would generally be placed at least 150 feet from any property line boundary where BLM land abuts private ownership. The proposed treatments vary by treating 1 to 4 trees per acre; these trees in general would be scattered throughout the treatment unit however “clumps” of up to 3 treated trees could be created in some situations. Examples of these situations include selecting specific trees to convert to snags or fell to not only augment the CWD habitat element but also provide additional growing space to selected overstory conifers thereby enhancing their development, or releasing small groups of shade-tolerant, understory conifers to promote the development of a multi-storied forest canopy.

The project proposes to treat up to 110 acres of Riparian Reserves; treatments may be applied down to the stream channel. Trees selected for treatment may, in certain instances, be selected in groups of up to 3 trees; this would be done in such a manner as to not appreciably reduce the current shade levels over streams.

All felled trees would be selected and felled in such a way as to minimize impacts to existing decay class 3, 4, and 5 down woody debris which is greater than 15 inches in diameter. Within five Wildlife Habitat Enhancement treatment units, a qualified field botanist or trained staff would be involved in selecting all trees to be felled or girdled; this would avoid the requirement of pre-project Lichen surveys. If qualified personnel are not available to complete the work indicated in this design feature, the five Wildlife Enhancement units would be surveyed according to survey protocol for component 2 Lichens (v. 2.0) prior to any project activity. Units that would require pre-project lichen surveys or botanical support during tree selection are; W17-1, W17-3, W13-1, W24-1, and W25-2.

The general design features below have been developed to reflect the overall stand condition, current CWD levels and the degree of root disease present within the stand. They will be used for analysis of the project although the actual treatments on the ground may vary slightly in order to reflect more site-specific stand conditions of the individual treatment areas. Treatments listed below include combinations of tree felling, girdling within the live crown, girdling at the base, tree topping and interplanting. Table 3 summarizes the proposed wildlife habitat enhancement treatments.

Table 3. Summary of the Proposed Wildlife Habitat Enhancement Treatments

Unit #	Unit size (acres)	Total # of trees girdled within the crown	Total # of trees girdled at the base	Total # of trees topped	Total # of trees felled	Acres of Potential Interplanting
W17-1	15	15	-	-	15	-
W17-2	5	5	-	-	-	-
W17-3	16	16	-	-	16	-
W13-1	55	165	-	-	55	-
W19-1	26	26	-	-	-	-
W24-1	46	138	-	-	46	-
W23-1	60	30	-	30	-	30
W23-2	18	-	-	-	-	18
W23-3	10	-	-	-	-	10
W23-4	17	34	-	-	-	-
W25-1	4	-	-	8	-	-
W25-2	26	-	26	-	26	-
Totals	298	429	26	38	158	58

T3S., R5W, Section 17:

Wildlife Habitat Enhancement Unit W17-1: This proposed unit contains a total of approximately 15 acres. The stand proposed for treatment is relatively structurally diverse; it is typed as a Douglas fir stand with a birthdate of 1900, although there are also variably spaced larger firs, mature cedar, hemlock and red alder throughout the unit in clumps or individual trees. The CWD present within the unit is almost exclusively of the later decay classes; snags are generally small and suppression related. No root rot was noted.

Proposed treatment – Girdle within the crown one 18-24” DBH tree per acre. Fell one 16-20” DBH tree per acre.

T3S., R5W, Section 17:

Wildlife Habitat Enhancement Unit W17-2: This proposed unit contains a total of approximately 5 acres. It is a Douglas fir stand with a birthdate of 1900. The few snags present within the unit are generally small and suppression related. There are additional accumulations of blow down material on the western edge of the unit which were not recorded at the time of the CWD survey because they did not fall within the survey plots. No root rot was noted.

Proposed treatment – Girdle within the crown one 18-24” DBH tree per acre.

T3S., R5W, Section 17:

Wildlife Habitat Enhancement Unit W17-3: This proposed unit contains a total of approximately 16 acres. It is typed as a Douglas fir stand with a birthdate of 1880 although there

is a range of tree sizes/ages within the stand.

Proposed treatment – Girdle within the crown one 18-24” DBH tree per acre. Fell one 14-20” DBH tree per acre in such a way as to provide the larger firs additional growing space where possible.

T3S., R6W, Section 13:

Wildlife Habitat Enhancement Unit W13-1: This unit, approximately 55 acres in size, contains Douglas fir stands with birthdates of 1880, 1890 or 1920. Some cedars are present within the riparian areas. It is likely that this unit receives some occasional use by spotted owls.

Proposed treatment – Girdle within the crown three 22-28” DBH trees per acre. Fell one 18-24” DBH Douglas fir per acre.

T3S., R5W, Section 19:

Wildlife Habitat Enhancement Unit W19-1: This proposed unit, approximately 26 acres in size, is typed as a Douglas fir stand with a birthdate of 1890 although it contains an appreciable component of larger red cedar and western hemlock as well as red alder and big-leaf maple and the Douglas fir are present in a range of sizes including a few residual old-growth. Although there are areas within this unit which are relatively open, no root rot was noted.

Proposed treatment – Girdle within the crown one 18-24” DBH tree per acre.

T3S., R6W, Sections 13, 23 and 24:

Wildlife Habitat Enhancement Unit W24-1: This proposed unit is approximately 46 acres in size. It contains stands typed as Douglas fir stands with birthdates of 1890 as well as a few acres of a mixed, alder / fir stand with a birthdate of 1900. It is likely that this unit receives some occasional use by spotted owls. There was little conifer regeneration noted within the unit although a few small hemlock were observed. Root rot was noted in a few areas but it is not present at severe levels.

Proposed treatment – Girdle within the crown three 22-28” DBH trees per acre. Fell one 18-24” DBH tree per acre in such a way as to where possible provide the larger firs additional growing space and/or release the limited hemlock understory.

T3S., R6W, Section 23:

Wildlife Habitat Enhancement Unit W23-1: This proposed unit is approximately 60 acres in size. It contains stands typed as Douglas fir stands with birthdates of 1890; some portions of the unit are severely infected with root rot. Large accumulations of logs and openings within the forest canopy are not uncommon, especially within the center of the unit.

Proposed treatment – Create one snag per acre by treating one 22-28” DBH tree per acre. Approximately half of these trees would be girdled within the crown and half would be topped; avoid creating snags in root rot infection centers. Evaluate the more open areas (approximately 30 acres) for interplanting to augment the existing regeneration by planting a variety of root rot

resistant or tolerant species.

T3S., R6W, Section 23:

Wildlife Habitat Enhancement Unit W23-2: This proposed unit is approximately 18 acres in size. It is typed as Douglas fir stand with birthdate of 1890 although due to a severe root rot infestation, the canopy has been greatly reduced. There is scattered conifer regeneration (Douglas fir, hemlock, and cedar) throughout the unit. On the western edge of the unit, accumulations of logs are not uncommon.

Proposed treatment – Augment existing regeneration by interplanting a variety of root rot resistant or tolerant species.

T3S., R6W, Section 23:

Wildlife Habitat Enhancement Unit W23-3: This proposed unit is approximately 10 acres in size. It is typed as Douglas fir stand with birthdate of 1890 and represents the most severely infested (root rot) portion of a larger stand and is contiguous with wildlife habitat enhancement unit W23-4. The canopy has been greatly reduced. There is scattered conifer regeneration (Douglas fir, hemlock, and cedar) throughout the unit. Accumulations of logs are not uncommon.

Proposed treatment – Augment existing regeneration by interplanting a variety of root rot resistant or tolerant species.

T3S., R6W, Section 23:

Wildlife Habitat Enhancement Unit W23-4: This proposed unit contains a total of approximately 17 acres. The unit is typed as a Douglas fir stand with a birthdate of 1890 although cedar and hemlock are present throughout the unit, within both the understory and overstory. Although root rot is likely present within the unit, it is not present at severe levels.

Proposed treatment – Girdle within the crown two 18-24” DBH trees per acre in such a way as to provide the existing cedar and hemlock additional growing space.

T3S., R6W, Section 25:

Wildlife Habitat Enhancement Unit W25-1: This 4 acre unit contains a stand typed as a Douglas fir stand with a birthdate of 1900. A moderate level of root rot was noted throughout the unit.

Proposed treatment – Tree topping of two 18-24” DBH trees per acre

T3S., R6W, Section 25:

Wildlife Habitat Enhancement Unit W25-2: This unit is approximately 26 acres in size and contains a stand typed as a Douglas fir stand with a birthdate of 1900. Root rot was not noted and there was little CWD within the hard decay classes.

Proposed treatment – Snag creation by basal girdling one 18-24” DBH tree per acre and fell one

18-24" DBH tree per acre in such a way as to where possible, provide the larger firs additional growing space and/or release the limited hemlock understory.

ENVIRONMENTAL CONSEQUENCES

Resulting from the Alternatives of the Baker Creek Wildlife Habitat Enhancement Projects

ALTERNATIVE 1

The desired future condition for the stands receiving a Wildlife Habitat Enhancement treatment includes late-seral stage habitat with a CWD (Coarse Woody Debris) level equal to the high level as described within the LSRA. A high level of CWD for stands of these ages is defined as 3200 to 5940 cubic feet of CWD per acre. In addition, this CWD would ideally be spread across all decay classes with approximately half of the volume being in snags and half in down logs. All of the wildlife habitat enhancement treatments have been designed to reflect the current stand condition and CWD level and to protect and enhance the development of various late-seral habitat features. Depending upon the individual treatment unit and nature of the specific treatment, there would be variation in the number and/or specific type of late-seral habitat features or processes being promoted or enhanced, however they all work toward attaining the desired future condition.

Snag creation by tree topping, or girdling at the base or within the crown, would help promote the development of various habitat features such as dead snags or live trees with broken and/or dead tops; decay, hollow cavities and/or loosened bark; large, thick or clustered branches; and eventually down logs. Creating conifer snags may retain or increase populations of cavity nesters in areas with low natural snag densities (Chambers et. al. 1997). The felling of trees, would add complexity to the forest floor in the form of fresh logs in areas which are currently lacking downed wood or heavily dominated by softer logs of the later decay classes. All of these features serve as vital denning, hiding, roosting, nesting, drumming, and/or foraging sites for a large range of species and are important components in late-successional forest communities.

Treatments which consider providing additional light or growing space to individual and small groups of trees would, on a very localized scale, help promote the development of larger conifers, small gaps in the canopy and/or a multi-storied structure. It would help accelerate crown expansion, stand differentiation, understory development and result in an increased level of diversity, both within the immediate area of the treated tree(s) and across the stand as a whole.

Where habitat enhancement projects occur within the Riparian Reserve land allocation, they would help promote the attainment of some of the Aquatic Conversation Strategy objectives, most notably objectives number 8 and 9 as described within the Salem District RMP and NWFP. This would be accomplished through helping to restore the species composition and structural diversity of the riparian communities, and processes such as nutrient and coarse wood cycling.

Wildlife Species listed or proposed under the Endangered Species Act:

In accordance with regulations pursuant to Section 7 of the Endangered Species Act of 1973, as amended, consultation with the USFWS concerning the potential impacts of implementing the Baker Creek Wildlife Habitat Enhancement Project upon the spotted owl, marbled murrelet and bald eagle has been completed. Those portions of the Baker Creek Wildlife Habitat Enhancement project which involve CWD creation were included within the programmatic “habitat modification” biological assessment prepared by the interagency Level 1 Team (terrestrial subgroup) for FY 2003-2004 projects within the North Coast Province which may modify the habitat of bald eagles, northern spotted owls and marbled murrelets (*USFWS Biological Opinion reference 1-7-02-F-958*). Should the project not be implemented within FY 2004 as currently planned but rather in a subsequent year, the project would be resubmitted for inclusion in the next appropriate programmatic consultation.

Those portions of the project which involve tree planting, including the associated site preparation, have been included within the programmatic “disturbance only” biological assessment prepared by the interagency Level 1 Team (terrestrial subgroup) for FY 2002-2003 projects within the North Coast Province which may disturb bald eagles, northern spotted owls and marbled murrelets (*USFWS Biological Opinion reference 1-7-02-F-422*). Should the project not be implemented within FY 2003 but rather in a subsequent year, or in the case of maintenance continue for several years, the project would be submitted for inclusion in the next appropriate programmatic consultation.

Spotted Owl and Marbled Murrelet Designated Critical Habitat - Since none of the proposed wildlife habitat enhancement projects are located within or near designated critical habitat for the spotted owl or the marbled murrelet, all of the projects would be of *NO EFFECT* upon designated critical habitat for the spotted owl or the marbled murrelet.

Northern Spotted Owl - (FT)

The nearest known spotted owl site is located approximately 0.5 miles from the one of the proposed wildlife habitat enhancement units. A female owl was located at this site in 2002.

Alternative 1 proposes to treat a total of approximately 298 acres with wildlife habitat enhancement treatments. All of the areas proposed for treatment with a wildlife habitat enhancement project are located within the Kutch/Panther spotted owl RPA as described within the document entitled *Delineation and Management of Reserve Pair Areas within Oregon's Northern Coast Range Adaptive Management Area*, dated June 1, 2000. The proposed wildlife habitat enhancement project is fully consistent with the management recommendations contained within this document.

All of the proposed wildlife habitat enhancement units are considered to be suitable habitat for the spotted owl; these acres represent approximately 20% of the 1,461 acres of suitable habitat within the Analysis Area. Some of the areas identified for treatment are within 0.25 miles of additional unsurveyed suitable habitat. The project has potential to create noise above the ambient level through the use of chainsaws, during the non-critical nesting season within and near stands of unsurveyed suitable owl habitat.

Based upon the scale and nature of the proposed treatments, minimal adverse impact to spotted owl suitable habitat is expected; no suitable habitat would be degraded nor removed from its current condition to function as suitable habitat. Beneficial impacts resulting from the wildlife habitat enhancement projects include increasing the abundance of major constituent elements of spotted owl habitat in areas identified as generally deficient in those elements - CWD (Coarse Woody Debris) in the form of both standing dead snags and down logs, and green with defect such as dead or broken tops. Some of these treated trees eventually may become suitable as spotted owl nest trees and/or generally enhance the quality of owl habitat through providing potential denning and foraging sites for various prey species as well as other special status species.

No tree which is currently, potentially suitable as a spotted owl nest tree nor any tree adjacent to a potentially suitable nest tree, would be affected.

Based upon the potential for disturbance resulting from the fact that chainsaws could be utilized and climbing within the canopy could occur after August 6 (within the later portion of the non-critical owl nesting season), as well as any potential minor short-term impacts and long-term potential beneficial impacts to spotted owl suitable and dispersal habitat, the project has been determined to *MAY AFFECT but NOT LIKELY TO ADVERSELY AFFECT* the spotted owl.

Marbled Murrelet - (FT)

There are no known marbled murrelet sites within the vicinity of any of the proposed wildlife habitat enhancement project areas. Several of the proposed treatment units are within and adjacent to unsurveyed potential murrelet habitat. There is potential for increase disturbance to this habitat as a result of the use of chainsaws, as well as climbing into the canopy during the non-critical portion of the murrelet breeding season. Daily time restrictions would be utilized for work occurring between August 6 and September 15.

Based upon the scale and nature of the proposed treatments, minimal adverse or beneficial impact to murrelet potential habitat is expected. No tree which is currently, potentially suitable as a murrelet nest tree nor any tree adjacent to a potential murrelet nest tree would be treated.

The wildlife enhancement project *MAY AFFECT but NOT LIKELY TO ADVERSELY AFFECT* the murrelet based primarily upon the potential for disturbance during the non-critical breeding season. This analysis also considers the potential for very minor, short- and long-term potential adverse and beneficial impacts to murrelet habitat.

Bald Eagle - (FT)

The nearest known bald eagle nest is historic in nature and located along Elk Creek about 8 miles west of the proposed project areas. Portions of several of the habitat enhancement units, most notably those within section 23, are considered suitable habitat for the bald eagle although eagles are not known to utilize the area. Additional suitable habitat may also be within 0.25 miles of these units or within 0.5 miles line-of-sight distance. The bald eagle breeding season is considered to be January 1 until August 31. The project has potential to create noise disturbance

during portions of the breeding season (August 6 to August 31, and January 1 to March 1).

Based upon the scale and nature of the proposed treatments, no short or long-term adverse impacts to eagle habitat is expected. The creation of additional snags within this unit has the potential for longer-term beneficial impacts to the quality of eagle habitat within the area through providing an increased opportunity for roosting sites although this impact is considered minor; some of the treated trees could, given enough time, develop into trees suitable for eagle nesting.

Based primarily upon the potential for disturbance within portions of eagle breeding season (August 6 to August 31, and January 1 to March 1) within the vicinity of suitable eagle habitat within and near some of the proposed treatment units, the project *MAY EFFECT* although it is *NOT LIKELY TO ADVERSELY EFFECT* the bald eagle.

Survey and Manage Wildlife Species (S&M)

Red Tree Vole

With the exception of some of the areas most severally impacted by root rot infestations, all of the proposed wildlife habitat enhancement treatment units contain suitable habitat for the red tree vole. While the nature of some of the proposed treatments would not trigger the need for pre-project protocol surveys, all of the areas determined to be suitable red tree vole habitat were surveyed following *Survey Protocol for the Red Tree Vole* (Version 2.0) (see project record documents #41 and #42). These surveys resulted in no red tree voles or red tree vole nests being located. Furthermore, the wildlife habitat enhancement treatments propose only the treatment of trees that do not contain a suspected nest of any bird or mammal and are not adjacent to any trees containing a suspected nest.

No impacts to red tree voles would be expected as a result of implementing the proposed wildlife habitat enhancement treatments. Based upon the nature of the proposed wildlife habitat enhancement treatments, the project would not impact the current or future suitability of the treated stands for use by red tree voles.

S&M Mollusks

The proposed wildlife habitat enhancement project areas currently contain suitable habitat for mollusks including S&M mollusks. However, based upon the various design features of the individual treatment units, as well as the nature of the habitat features to be impacted, the wildlife habitat enhancement projects have been determined not to be “habitat altering” to the point of triggering the need for pre-project S&M mollusk surveys. In some situations, where a wildlife habitat enhancement treatment unit is adjacent to a density management treatment unit, S&M mollusk surveys may have been conducted within portions of the habitat enhancement unit even though the expected impacts of the wildlife habitat enhancement treatment was not believed to be of the nature to trigger the need to conduct pre-project surveys (see project record document #38 and #39). Units that may have been partially surveyed for S&M mollusks include W19-1, W25-1 and W25-2; no S&M known sites were identified within the proposed wildlife habitat enhancement units.

No impacts to S&M mollusk species are expected to result from the proposed wildlife habitat enhancement projects. Should any S&M mollusk species be present within or near a treatment unit, the project is not expected to impact their continued maintenance at the site. In addition, the proposed action would not be expected to result in the elevation of the status of those mollusk species currently on the Bureau's 6840 Special Status Species list to any higher level of concern including the need to list under the ESA.

Other Special Status Species

No species identified under the Bureau's 6840 manual Special Status Species policy are expected to be adversely impacted by the wildlife habitat enhancement treatments which would result in the need to elevate their status to any higher level of concern including the need to list under the ESA. A wide range of species which utilize or depend upon snags and/or downed logs such as the clouded salamander and pileated woodpecker, both Bureau Tracking species, as well as several species of bats would be expected to benefit from the proposal.

ALTERNATIVE 2 - (The "No Action" Alternative)

Under this alternative the wildlife habitat enhancement projects would not be implemented; a total of 493 trees would not be converted into snags or snag topped green trees, 158 trees would not be felled for CWD and up to 58 acres would not be interplanted with root disease resistant or tolerant species. The CWD habitat components within the treatment units would continue to be heavily weighed toward down logs of the later decay classes rather than having a wider range of decay classes present within the stands and a larger percentage of the total CWD volume present in the form of snags. The forest stands would continue to grow and develop without management intervention. The development of those features of late-seral stage habitat promoted by implementation of the wildlife habitat enhancement projects (snag-topped green trees, dead snags, fresh down logs) would be expected to occur in a slower time frame than under Alternative 1. The desired future condition, late-seral stage habitat with a CWD level equal at least to 3200 to 5940 cubic feet of CWD per acre, spread across all decay classes with approximately half of the volume being in snags and half in down logs would be expected to be eventually reached, but over a longer period of time.

Under the "No Action" Alternative, the identified beneficial and adverse impacts of the action alternative upon wildlife and/or wildlife habitat would not occur within the identified treatment units at this time.

Selection of the "No Action" Alternative would be of *NO EFFECT* upon the marbled murrelet, spotted owl, bald eagle and all other species listed under the ESA. In addition, it would not be expected to adversely impact (result in a loss in population viability or elevate their status to any higher level of concern) any of the wildlife S&M, Special Status, or other Species of Concern discussed above.

CUMULATIVE EFFECTS

"Cumulative Effects" are the impacts on the environment that result from the incremental impact

of the action when added to other past, present and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative effects can result from individually minor, but collectively significant actions taking place over a period of time (CEQ 1508.7). Cumulative effects analysis provides greater insight into understanding the current environmental factors and the likely trends that might affect the environment.

Relative to wildlife resources, the only issue(s) identified within the *North Yamhill Watershed Analysis* (January 1997), *Deer Creek, Panther Creek, Willamina Creek and South Yamhill Watershed Analysis* (May 1998), and the *Nestucca Watershed Analysis* (October 1994) with a likelihood for cumulative effects is related to factors affecting the distribution of sensitive species. All three of these watershed analyses discuss similar issues impacting wildlife habitat. These issues are related to ownership patterns and past management practices that have resulted in a high degree of forest fragmentation, small patch sizes and the associated limited amount of interior habitat. These factors can result in dispersal problems for some species and a high degree of regional isolation. Another commonly discussed and related issue is the general lack of late-seral habitat and/or some late-seral habitat features such as “forest legacies” including large trees, snags and down logs.

No adverse cumulative effects associated with the modification of habitat for the species of concern that utilize late-seral habitat which are expected to result from the proposed projects. This is based upon the facts that the proposed density management projects would not take place within stands which are currently providing late-seral habitat; the proposed treatments would in fact, promote the development of late-seral habitat sooner than would occur without treatment. Where individual habitat features which are generally associated with late-seral habitat are present within density management treatment units, such as legacy CWD or a few residual larger trees, these habitat elements would be maintained within the stand. The density management treatments would not occur within stands which are suitable habitat for the spotted owl or bald eagle; the density management treatment units have been determined to be dispersal habitat for the spotted owl and post-treatment 92% of the treated stands are expected to be a condition to continue functioning as dispersal habitat. Seven proposed density management treatment units (1-1, 7-1, 25-1, 31-1, 33-1, 35-1 and 35-2) contain, or are in proximity to and contiguous with stands which contain, individual trees and/or small groups of trees which are potentially suitable as murrelet nest trees based upon the presence of suitable nesting platforms. All of these areas would be surveyed for murrelets prior to implementation and no tree which appears to be suitable for murrelet nesting would be felled.

While the wildlife habitat enhancement projects are proposed to take place within slightly older stands than the density management treatments, some of which may currently be providing late-seral habitat, they are designed to promote the development or enhance the quality of some late-seral habitat features while protecting the current habitat values.

There are no other BLM projects anticipated to take place within the affected watersheds during the same relative time frame or foreseeable future which would impact late-seral stage habitat. (See also Appendix 4 - Past, Present, and Reasonably Foreseeable Future Actions)

Less information is available on habitat altering management activities to occur on non-federal lands however, the general trend on private land is one of decreasing quantities of late-seral habitat. The majority of non-federal forestland within the affected watersheds is owned by industrial timber companies and is managed for timber production on relatively short rotations. This generally precludes the development and/or maintenance of late-seral habitat. While private lands within the northern portion of the Oregon Coast Range, including the Analysis Area, support some dispersal habitat for the northern spotted owl, the suitable habitat for the spotted owl, marbled murrelet and bald eagle on these lands is very limited in quantity and marginal in quality thereby not notably contributing to the viability of the species. Before the spotted owl was listed as a threatened species under the ESA, Thomas et al. estimated in *A Conservation Strategy for the Northern Spotted Owl* (USDA and USDI 1990) that most privately-owned spotted owl habitat in Oregon would be eliminated within 10 years. Within the *Recovery Plan for the Marbled Murrelet* (USDI 1997) the USFWS recognized that most of the nesting habitat on private land had been eliminated by timber harvest and that the remaining tracts of potentially suitable habitat on private lands are subject to continuing timber harvest operations. Additionally, in most areas, second-growth forests have been or are planned to be harvested before they will attain the characteristics of older forests. Because the majority of private forestland within the vicinity of the proposed action area is managed for timber production, little spotted owl, bald eagle or murrelet suitable habitat remains on these lands. Habitat conditions on these lands are not expected to appreciably improve within the foreseeable future and the limited amount of remaining mid- and late-seral stage habitat is expected to be greatly reduced or completely removed over time.

Given the expectation of continuing trends on non-federal lands within the watershed resulting in decreasing quantities of mid- and late-seral habitat, there is potential for adverse cumulative impacts associated with the “No Action” alternative. This is based upon the fact that the proposed density management and wildlife habitat enhancement projects would not take place; the projects have been designed specifically to promote the development of late-seral habitat sooner than would occur without treatment. That is to say, the accelerated development of late-seral habitat resulting from the implementation of action alternatives would in effect, be helping to offset the expected trends occurring on non-federal land; by selecting the “No Action” alternative there would be potential for adverse cumulative impacts. The timing of the adverse cumulative impacts associated with the “No Action” alternative would be expected to mirror the timing of the benefits associated with the implementation of the action alternatives. In the case of some of the wildlife habitat enhancement projects, benefits would begin essentially at the time of project implementation while for the density management treatments, the benefits would be expected to increase gradually over time, most notably at the scale of decades, as the reserve trees within the treated stands respond to the decreased competition (see Appendix 2 - *Silvicultural Prescription for the Baker Creek Density Management Project* for more information).

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